



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/762,863	01/22/2004	Eino Jacobs	A02 3122 USB	5930
65913	7550	10/09/2008		
NXP, B.V. NXP INTELLECTUAL PROPERTY DEPARTMENT M/S41-SJ 1109 MCKAY DRIVE SAN JOSE, CA 95131				
EXAMINER				
VICARY, KEITH E				
ART UNIT		PAPER NUMBER		
2183				
NOTIFICATION DATE		DELIVERY MODE		
10/09/2008		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip.department.us@nxp.com

Office Action Summary

Application No.

10/762,863

Applicant(s)

JACOBS ET AL.

Examiner

Keith Vicary

Art Unit

2183

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 July 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 30-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 30-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SI/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 30-32 are pending in this office action and presented for examination.

Note that claims 30-32 have been previously elected on 1/14/2008 in response to a restriction by a previous examiner.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 30-32 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 26 of U.S. Patent No. 5852741.

Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 26 of the '741 application contains every limitation as claims 30-32 of the instant application.

4. Claims 30-32 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 10 of U.S. Patent No. 5787302. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 10 of the '302 application contains every limitation as claims 30-32 of the instant application.

5. Claims 30-32 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 10 of U.S. Patent No. 5826054. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 10 of the '054 application contains every limitation as claims 30-32 of the instant application.

6. Claims 30-32 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 3 of U.S. Patent No. 5878267. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 3 of the '267 application contains every limitation as claims 30-32 of the instant application.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 30-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. Claim 30 recites the limitation "a computer storage medium comprising a stream of stored instructions" in lines 1-2. It is indefinite as to how a computer storage medium can comprise a *stream* of stored instructions. In other words, stored instructions may be read out from memory as a stream (e.g. sequentially) but the instructions as stored in memory are not in a stream format.

10. Claim 30 recites "a computer storage medium comprising a stream of stored instructions, the stream of stored instructions including...a first instruction...a second instruction." It is indefinite as to whether this limitation is intended to be the combination of an appropriate medium to constitute a manufacture within the meaning of 101, where the series of instructions are stored on that medium, or whether the medium is intended to encompass a stream (i.e. a signal) of instructions. To overcome this rejection, examiner recommends phrasing the claims to convey that the stream of stored instructions is stored on the computer storage medium, and not merely that the computer storage medium comprises a stream of stored instructions.

a. Claims 31-32 are rejected for failing to alleviate the rejection of claim 30 above.

11. Claims 31 and 32 recites the limitation "the medium" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 101

12. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

13. Claims 30-32 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

b. Signals per se are considered to be non-statutory subject matter.

14. Claim 30 can be interpreted to be directed toward signals per se. The claim recites "a computer storage medium comprising a stream of stored instructions, the stream of stored instructions including...a first instruction...a second instruction." It is first unclear as to whether this limitation is intended to be the combination of an appropriate medium to constitute a manufacture within the meaning of 101, where the series of instructions are stored on that medium, or whether the medium is intended to encompass a stream (i.e. a signal) of instructions. In the latter case, it appears that signals per se are being claimed.

c. Claims 31-32 are rejected for failing to alleviate the rejection of claim 30 above.

15. To overcome this rejection, examiner recommends phrasing the claims to convey that the stream of stored instructions is stored on the computer storage medium, and not merely that the computer storage medium comprises a stream of stored instructions.

16. Two grounds of rejection are given below. The 102 rejection is made using a broader interpretation of the claimed limitations; the 103 rejection is made using a more specific interpretation of the claim limitations that is more consistent with the specification.

Claim Rejections - 35 USC § 102

17. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

18. Claims 30-32 are rejected under 35 U.S.C. 102(e) as being anticipated by Eickemeyer et al. (Eickemeyer) (US 5500942).

19. Consider claim 30, Eickemeyer discloses a first instruction including a first format field that specifies an instruction compression format; and a second instruction, following the first instruction, that is compressed according to the first format field in the first instruction (col. 13, lines 20-22; the first instruction starts with the first byte, the value in the length field for the first byte indicates where the second instruction starts; this length is needed because the instructions are of variable length; variable length instructions are compressed in that they are not fixed length instructions and relatively smaller instructions in comparison to other instructions do not need any filler bits, and

they are compressed into memory from a standard fixed length implementation. Thus, a given instruction is compressed into a smaller space but which start can still be determined using the length field. For example, a first instruction which indicates a next instruction begins in two bytes, wherein an instruction can be up to six bytes long, specifies that the next instruction is essentially compressed into memory by four extra bytes).

20. Consider claim 31, Eickeneyer discloses the second instruction includes a compressed operation, the compressed operation being compressed according to the first format field (col. 13, lines 20-22; the second instruction itself is the compressed operation, as it has been compressed into the instruction memory but is still addressable using the first format field which contains where the second instruction begins).

21. Consider claim 32, Eickeneyer discloses the second instruction includes a second format field that specifies a compression of an operation in a third instruction (col. 13, line 25-38, which discloses of the chain of compressed instructions).

Claim Rejections - 35 USC § 103

22. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

23. Claims 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yajima et al. (Yajima) (US 5632024) in view of Colwell et al. (Colwell) (US 5057837) in view of Matsuo et al. (Matsuo) (US 4858104).
24. Colwell is cited in the IDS filed 1/22/2004.
25. Consider claim 30, Yajima discloses of a second instruction which is compressed (col. 2, lines 43-47, fetched instruction).

However, Yajima does not disclose of a first instruction including a first format field that specifies an instruction compression format, and that said second instruction follows the first instruction and is compressed according to the first format field in the first instruction.

On the other hand, Colwell discloses an instruction including a first format field that specifies an instruction compression format; and an instruction that is compressed according to the first format field in the instruction (col. 2, lines 5-19, a representation of an instruction word comprises a mask word and each non-zero instruction field; this is further explained in col. 14, lines 65-68, col. 15, lines 1-19, and col. 15, lines 38-40; an instruction includes a mask word which specifies how an instruction is compressed).

Colwell's general teaching of VLIW increases performance by executing instructions in parallel, and Colwell's specific teaching of compressing these VLIW instructions avoid the necessity of referring back to a slower memory (Colwell, col. 15, lines 5-10).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teaching of Colwell with the invention of Yajima in order to increase system performance while avoiding the necessity of referring back to a slower memory. Note that the overall combination thus entails an instruction which includes a format field that specifies an instruction compression format which determines how the instruction is compressed.

However, Yajima and Colwell do not disclose that a first instruction includes a first format field that specifies an instruction compression format, and a second instruction, following the first instruction, that is compressed according to the first format field in the first instruction.

On the other hand, Matsuo discloses of the concept of using an earlier instruction to trigger a step for a later instruction, instead of the later instruction itself (col. 4, lines 27-37, information used to execute a branch instruction is gathered and processed from the instruction before the branch instruction and not the branch instruction itself.

Matsuo's teaching allows operations to be performed concurrently instead of occurring in series (Matsuo, col 4, lines 35-37) and increases the rate of throughput of the pipeline (Matsuo, col. 5, lines 45-47).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teaching of Matsuo with the invention of Yajima and Colwell in order to allow operations to be performed concurrently instead of occurring in series and increase the rate of throughput of the pipeline.

26. Consider claim 31, the combination of Yajima, Colwell, and Matsuo teach that the second instruction includes a compressed operation, the compressed operation being compressed according to the first format field (the compressed instruction as a whole is a compressed operation, or alternatively the nop is itself an operation, or alternatively any sub-instruction is an operation in that it is compressed within the instruction itself).

27. Consider claim 32, the combination of Yajima, Colwell, and Matsuo teach that the second instruction includes a second format field that specifies a compression of an operation in a third instruction (Neither of the three arts limit the amount of consecutive instructions which use compression or provide information for subsequent instructions).

Response to Arguments

28. Applicant arguments regarding the double patenting rejection made by the previous examiner are persuasive; the double patenting rejection is thus rescinded. However, other double patenting rejections are newly made as detailed above.

29. Applicant's arguments with respect to the rejection of claims 30-32 made by the previous examiner have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

30. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- d. Maccianti et al. (US 4661925) discloses of microinstructions with variable length and of microinstruction prefixes which may be obtained from a field of bits part of a previous microinstruction.
- e. Faraboschi et al. (US 5870576) discloses of variable length compressed instruction formats wherein offsets are stored in mask words.
- f. Faraboschi et al. (US 5930508) discloses of compacting BLIW instruction wherein NOP codes are eliminated from the compacted instruction.
- g. Mahalingaiah et al. (US 5933629) discloses of sequence control fiends appended to microcode, wherein a given sequence control field indicates information regarding the subsequent microcode line.
- h. Okuma et al. (Instruction Encoding Techniques for Area Minimization of Instruction ROM) discloses of a decoder between the instruction memory and the instruction register which decompacts the compacted instruction.
- i. Miller et al. (US 6240506) discloses of expanding instructions with variable-length operands to a fixed length.

31. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Keith Vicary whose telephone number is (571)270-1314.

The examiner can normally be reached on Monday - Thursday, 6:15 a.m. - 5:45 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Chan can be reached on 571-272-4162. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Eddie P Chan/
Supervisory Patent Examiner, Art Unit 2183

/Keith Vicary/
Examiner, Art Unit 2183